

A summary of Dr. Coburn's **Ethical Stem Cell Research Bill**

Respect for Life Pluripotent Stem Cell Act of 2005 (S. 1557)

Amends the Public Health Service Act to require the Director of the National Institutes of Health (NIH) to provide for the conduct and support of basic and applied research in isolating, deriving, and using pluripotent stems cells without creating or harming human embryos. Provides that such research may include: (1) research in animals to develop and test techniques for deriving cells from embryos without doing harm to embryos; (2) research to develop and test techniques for producing human pluripotent stems cells without creating or making use of embryos; and (3) research to isolate, develop, and test pluripotent stem cells from postnatal tissues, umbilical cord blood, and placenta.

Prohibits research under this Act that: (1) involves the use of human embryos; (2) involves the use of stem cells not otherwise eligible for NIH funds; (3) involves the use of any stem cell to create or to attempt to create a human embryo; or (4) poses a significant risk of creating a human embryo by any means.

- Authorizes \$15 million for the National Institutes of Health to develop ethical techniques to create and study pluripotent stem cells.
- Prohibits any research that would harm or destroy a human embryo.
- Directs studies on animal models to develop and test techniques for producing human pluripotent stem cells.

POSSIBLE ALTERNATIVES THAT COULD BE FUNDED BY S. 1557:

(Note: Any studies involving embryos could only be conducted on animal models under our bill.)

Pluripotent Adult Stem Cells.

- Some adult & cord blood stem cells show same flexibility as embryonic stem (ES) cells.
- Ample published evidence.
- No ethical concerns.

De-differentiate an adult cell back to earlier developmental stage.

- Use chemicals, cell proteins, genetic manipulation to convert adult cell to ES-like cell.
- Some published evidence.
- No ethical concerns as long as cell not taken back to early embryo stage.

“Biopsy” Non-Lethal Extraction of Cells from Live Embryo.

- Remove 1-2 cells from live embryo without harming the embryo, use removed cells as ES cells.
- Some evidence; PGD (pre-implantation genetic diagnosis) now used in some IVF clinics.
- Needs more study to determine long-term safety for PGD babies.

Reprogramming adult cell using ES cells.

- Fuse adult cell with ES cell, reprogramming the adult cell to act like an embryonic stem cell.
- Some published evidence.

ANT-OAR (Altered Nuclear Transfer-Oocyte Assisted Reprogramming).

- Mutation added to adult cell genes/nucleus, then nuclear transfer into enucleated oocyte (egg). Intent is creation of non-embryo expressing added genes that directly produces ES cells.
- No published evidence.
- Requires sources of many human eggs.